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N.A.I.T.

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SUBMISSION

TO THE

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COMMISSION ON EDUCATIONAL PLANNING

BY THE

NORTHERN ALBERTA INSTITUTE OF TECHNOLOGY

W.A.B. SAUNDERS, P.Eng.
PRESIDENT

June, 1970

SUBMISSION

Introduction and Background

While this submission is of a general nature, relating to Technical Education throughout Alberta, it also gives more prominence to the Northern Alberta Institute of Technology and any future ramifications which will have an effect on N.A.I.T.

It should be pointed out that while technical education in Alberta is beginning to enjoy some measure of recognition by the general public, nevertheless, as technical education fits into the wide spectrum of education in Alberta, it must be conceded that it is perhaps the least understood of any type of education in our Province. It would also be true to state that this situation is not unique to Alberta and that in a general way, the same situation prevails throughout the North American Continent. Generally the older European countries have enjoyed some form of technical education for hundreds of years, clearly understood it and accept it as an intrical part of the education process.

History of Technical Education in Alberta

Technical Education in Alberta had its beginning as the

result of a Government decision to establish the University of Alberta in Edmonton. To placate the citizens of Calgary, a Royal Commission was established to investigate the possibilities of some type of education, other than University, for Calgary. This Commission decided that in the years to come there would be a need for a Technical Institute somewhat similar to that which exists today, and in addition it was felt that there should be some outlet for the expression of artistic talent.

As a result it recommended the formation of the Provincial Institute of Technology and Art in Calgary. The Institute started in 1916 in temporary quarters and in many ways did not reflect the aims and objectives of the Royal Commission. Its initial purpose was to rehabilitate veterans of World War I and basically the courses were more trade oriented than those which we would describe as Technician courses. In 1921 permanent buildings were erected and some of the courses began to reflect the intent of the Commission, including some Art courses.

This situation continued through the depression, and about the time World War II commenced, the Technical Institute had emerged as a combination of Trade, Technology and Art

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Institution. During World War II the Institute declined drastically and operated in temporary quarters under the grandstand in Calgary. At the conclusion of hostilities the Institute moved back to its present campus and because Canada was emerging as an industrial nation, the Institute began, for the first time probably, to come up to the expectations of the Royal Commission recommendations prior to 1916. In the post-war era the Institute also undertook the training of apprentices and at the same time, elevated its technical courses to be truly subprofessional.

With the signing of the Federal-Provincial Training Agreement, the Northern Alberta Institute of Technology came into being in 1962, and the Provincial Institute of Technology and Art changed its title to the Southern Alberta Institute of Technology. From the day that it opened, the Northern Alberta Institute of Technology experienced phenomenal acceptance by the public at large, courses were oversubscribed, and although at the time it was constructed, it was the largest Institute of Technology in Canada - it soon became evident that further expansion was required and several buildings were added.

Present Status of Technical Education in Alberta

At the present time it could not be said that the Northern

Alberta Institute of Technology or the Southern Alberta Institute of Technology are pure Technical Institutes. The demands of industry are such that if these Institutions are to adequately serve the community, they must provide apprentice courses, short courses, technical courses, business courses, up-grading courses and extension courses. At present Alberta enjoys the highest per capita ratio of apprentices being trained anywhere in Canada. At the same time the numbers of technicians emerging from the Institutes compares very favourably with other parts of Canada. The two Institutes have in fact now emerged as the type of educational entity that was foreseen by some very wise men responsible for the first Royal Commission on Technical Education prior to 1916. Employers are becoming better acquainted with the graduates of N.A.I.T. and as a result, the employment situation for such students has been excellent.

While the main objective of the Institute is not to provide students for the University, nevertheless a percentage of its graduates change their aims, due to maturity, etc., and could compete very favourably at University. An experiment was carried out whereby students recommended from N.A.I.T. were given admission directly into second year Engineering at the University of Alberta, and to date this has proved to be a successful venture. This privilege has now been extended

by the Department of Geology, and on a very informal basis, by the Faculty of Commerce.

Philosophy in Function

The basic philosophy of the Institute is to provide instruction in those areas that are outside of the purely academic fields and may be considered semi-professional, skilled, or even semi-skilled. Generally such offerings are post-secondary in nature and lie in the technical field, if business courses requiring computer work and trade courses are accepted in this definition.

Also the general philosophy of N.A.I.T. is perhaps a middle of the road philosophy. One philosophy states that an educational institution should provide courses for any student wishing to take any course irrespective of the employment opportunities, upon completion of the course. The other philosophy states that the numbers of people accepted into a course should be limited to the number of jobs available upon completion of training. The philosophy of N.A.I.T. falls somewhere between these two extremes. It is extremely difficult to predict the numbers of people required by industry two years in the future and it is therefore felt that a reasonable estimated excess of market requirements should be accepted. It is also considered that the courses offered

should be at the request of the community. The presentation of new courses is accomplished when the community asks the Minister of Education to investigate their requirements for trained personnel in a particular field.

Another part of the N.A.I.T. philosophy is that the courses given should be such that with a minimal amount of on-the-job training, the graduate can be productive. This necessitates depth in specialized technologies and since there are only two years in which to offer this material, it does restrict the broad offerings of a University course.

To offset obsolescence, the curriculum is weighted to give mathematics, science and English in excess of the immediate requirements of the technology. Since most technologies are based primarily on mathematics, and since it is possible to acquire extra or new scientific knowledge if one has a sound mathematical grounding, and with the new scientific knowledge, master the technology; it is therefore felt that the additional mathematics provides the tool necessary to offset obsolescence.

One further, but very important part of our philosophy, is that we must be continuously in a state of change as long as we have a continuously changing industrial world. We must be able to produce a student that is acquainted with current practices

in industry if we are to supply an employee that is productive in a minimal length of time.

It is a well established fact that people engaged in fields of endeavor that are technical in nature, should update themselves every three to five years, therefore, one of the aims of this Institute is to provide, through its Extension Department, short, updating courses as requested.

From time to time N.A.I.T. has been criticized because it does not offer courses in the humanities for its students. The theory being that in todays complicated society our graduates would be better able to cope with the problems that arise in life and make a greater contribution to society if they were exposed to courses of this nature. It should be pointed out, however, that students generally, coming to a Technical Institute are technically inclined and if courses in the humanities were forced on them as part of the curriculum, it is very likely that the true value of such courses would be lost due to the hostility of the students towards such offerings. It is conceded that such courses could, and perhaps should, be given as options on a voluntary basis. It should be pointed out that experience indicates that students involved in technical education become interested in the humanity type of course

four to five years after graduation, and that perhaps courses of this nature should be given by the Extension Division to meet this latent requirement.

Programs

- Adult Pre-Technology
- Air Conditioning and Refrigeration Technology
- Architectural Technology
- Banking and Finance
    - Teller Training and General Business
    - Banking and Financial Management
- Biological Sciences Technology
- Building Construction Technology
- Business Administration
- Chemical Technology
- Civil Technology
- Commercial Baking
- Commercial Cooking
- Commercial Signwriting Program
- Computer Systems Technology
- Dental Assisting Program
- Dental Laboratory Technology

Dietary Technology

Distributive Technology

Drafting Technology

Electrical Technology

Electronic Technology

Exploration Technology

Food Technology

Forest Technology

Gas Technology

Heavy Duty Equipment Technology

Host-Hostess Short Course

Industrial Production Technology

Instrumentation Technology

Materials Testing and Metallurgy Technology

Meat Cutting and Butchering

Medical Laboratory Technology

Medical Record Librarian

Medical X-Ray Technology

Millwork and Carpentry

Office Machine Technician

Photographic Technology

Plastics Technology

Radio and Television Arts

Radio and Television Service Technician

Respiratory Technology

Secretarial Technology

Sewing Department

Social Services Technology

Surveying Technology

Telecommunications Technology

Welding (Short Course - Pre-Employment)

Apprentices Training Courses:

Bricklayer

Carpenter

Electrician

Power Electrician

Communication Electrician

Painter and Decorator

Plasterer

Plumber

Steamfitter

Gasfitter

Motor Mechanic

Auto Body Mechanic

Sheet Metal Mechanic

Welder

Radio Technician

Machinist

Millwright

Lather

Cook

Heavy Duty Mechanic

Tile Setter

Baker

Partsman

Roofer

Floorcovering Mechanic

Instrument Mechanic

Future Development

In the future we believe the basic philosophy of the Institute should not change, and that we should resist any attempt to become an Engineering Degree granting institution. However, as the Universities progress and drop courses which they consider to be technical, we should undertake such courses because if we don't, we will leave a gap not covered by anyone. There will undoubtedly be pressures exerted to issue some manner of

degree from a Technical Institute. We would only agree to this provided it can be done in such a way that in the eyes of the general public there is no confusion between the degree offered by the University and that, perhaps, offered by a Technical Institute.

In the future we cannot foresee the day when technical education will be less expensive than it is now, however, we do foresee the day when computers and various types of teaching aids will allow us to present more information in depth, better organization of material and more flexibility for the students. We feel that with such aids we will be presenting a superior course to that given at the present time, probably at less cost than if we tried to produce one of the future courses today using our present methods.

If we believe that the future is going to bring shorter working hours and longer leisure hours, we will have to improve our technologies if we are to retain or increase our productivity, and by so doing, retain or increase our present standard of living. This, therefore has got to mean even greater emphasis on high quality and high calibre technical education. From our present plans we can foresee the size of this Institution increasing to 8,000 students during

the day, prior to 1980. We hope that by that time another institution will be in operation to meet the demand because we believe that in excess of 8,000 students would change the personality of this Institution and tend to destroy our staff-student relationship which we enjoy at the present time.

There appears to be a trend towards generalization of education in the High Schools, Junior Colleges and Universities that will probably continue during the next thirty years. At the same time, the Universities are becoming more and more theoretical in nature. This trend obviates the need for specialized Institutes to accompany, and compliment, such generalization to make the overall system workable and efficient.

As an example, in the field of health there are today several specialized courses aiding the medical profession, such as X-Ray Technicians, Respiratory Technicians and Medical Lab Technicians. Perhaps thirty years from now other medical aids will be used by physicians to relieve them of many of the highly specialized aspects of medicine which will develop, and which will be so numerous and require such specialization, that the average physician would experience difficulty adequately covering all facets of his practice. This principle will apply to other professions in the not too distant future.

The accelerated rate of the accumulation of knowledge in the world today and the sophistication of the accompanying technology make it evident that there will have to be greater numbers of technical specialists at many levels serving all walks of life, if we are to adequately utilize the information available to us.

Retraining and updating will become a way of life. To cope with this demand an increasing portion of the specialized institution will have to be devoted to the short intense total submersion type of course. This will mean a much more prominent roll for the Extension Division.

NAIT's Role in Continuing Education

The Extension Division is charged with the responsibility for all technical education and training outside of the regular Institute programs with courses offered in the evenings, during the day, and at weekends as space permits. To a great extent the success of the Extension Division can be attributed to close liaison and communication with industry and employers.

The Extension Division at each Institute will organize and promote courses other than full-time regular day courses,

inclusive of correspondence if the need be established, in the following general areas.

A. To assist those already engaged in a trade or occupation by providing them with instruction in the technical and theoretical aspects of their work, and to bring such students up to date with the latest information and practices in their own particular areas.

B. To provide sufficient basic instruction to those who wish to change to a new occupation or prepare for such a change.

C. To work in close cooperation with professional bodies, i.e., The Association of Professional Engineers of Alberta and The Alberta Society of Engineering Technologists, in the organization and promotion of training required by the professional bodies.

D. To develop and provide a method by which adults may progress through and acquire a technical diploma of equal stature with the day diploma.

E. To develop a full-scale Summer School program.

F. To provide short, intensive, full-time courses for specific purposes as may be required by industry.

G. To provide pre-employment training for persons over the compulsory school attendance age who have left elementary or secondary school and who require such training to develop or increase occupational competence or skills.

H. To organize and promote any other courses for which there is a demand from industry, labour, or the general public, where advisable and in accordance with the general policy of the Institute, providing these are within the area of technical competency of the staff.

I. To provide courses for those who wish to improve their use of leisure time when space and facilities are available.

J. To continue and promote greater dialogue with all segments of the community in an attempt to identify and clarify the educational needs of our society.

K. To continually re-evaluate the program in order to be consistent with the changing needs of business, industry and society.

NAIT Extension draws from the experience, academic and technical, of its staff along with quality facilities, to provide educational opportunity to all individuals, both within and outside the Institution. The Extension Division is looking toward facilities

such as radio and educational television in combination with correspondence to provide educational opportunities to a broader spectrum of our population in the near future.

Extra Curricular Activities

Extra Curricular Activities play a very important part in the total development of the student attending N.A.I.T. Such Activities provide the best means at our disposal to expose the students to the non-technical part of education in a manner acceptable to the students. In our opinion students services and amenities are therefore very important since they provide the best atmosphere for effective participation in extra curricular activities. We also feel that such facilities and amenities should be on a par with those provided at the Universities if the Technical Institutes are to function properly.

Conclusions

We are sincere in saying that if you destroy the flexibility of this Institute, and its ability to change with changing industry, this Institute will no longer function successfully. To date ours

has been a success story, however we would point out that it takes very little to upset the delicate balance between success and failure in the operation of a Technical Institute of this size. We believe that our present method of administration is a large factor contributing to our success. It is therefore hoped that restrictions and controls will not be imposed on us that would alter our methods of operation. Somewhat facetiously, we might say that we would resist any attempt to impose conformity that would reform us into mediocrity.

W.A.B. SAUNDERS, P.Eng.

President

June, 1970

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